

Notice of Allowability

Application No.

10/623,247

Examiner

Michael P. Stafira

Applicant(s)

IKEDA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to filing date 7/18/2003.
2. ☒ The allowed claim(s) is/are 1-12.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Allowable Subject Matter

2. Claims 1-12 are allowed over the prior art of record.
3. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the prior art fails to disclose or make obvious a particle size distribution device for measuring the size of particles by irradiating the particles in a carrier medium with radiation that can be diffracted and/or scattered by the particles and detected by a plurality of detectors having a concentration level adjusting unit for changing a relative amount of particles to an amount of carrier medium to be applied to the measurement cell; a storage device for storing the outputs of the detectors for each concentration level irradiated; a correction unit for providing a concentration correction constant; and a calculating unit for providing particle size distribution outputs from the outputs of the detectors as adjusted by the concentration correction constant, and in combination with the other recited limitations of claim

1. Claims 2-4 are allowed by the virtue of dependency on the allowed claim 1.

Regarding claim 5, the prior art fails to disclose or make obvious a particle size distribution device for measuring the size of particles by irradiating the particles in a carrier medium with radiation and detecting the influence of the particles on the radiation, the improvement of enabling a compensation for the amount of particles in the medium having a concentration level adjusting unit for changing a relative amount of particles to an amount of

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carrier medium to enable measurements of an influence of particles on the radiation that are substantially free from an effect relating to a level of concentration of particles to the carrier medium; and a correction unit for generating a proportional relationship between the amount of particles in the carrier medium and the output of the detectors, substantially free from an effect relating to the level of concentration of particles to the carrier medium, based on measurements from the concentration level adjustment unit to enable a calculation of concentration correction constants, and in combination with the other recited limitations of claim 5.

Regarding claim 6, the prior art fails to disclose or make obvious a method of correcting for concentration errors generated by particles in a carrier medium that are irradiated and measurements are taken by detectors having the steps of deriving a proportional relationship between the amount of particles in the carrier medium and an output of detectors in a concentration range substantially free from an effect relating to the level of concentration of particles to the carrier medium; extending the proportional relationship through concentration ranges that have an effect relating to the level of concentration of particles to the carrier medium; and determining concentration correction constants from a difference between the proportional relationship and detector outputs in the concentration ranges that have an effect relating to the level of concentration of particles to the carrier medium, and in combination with the other recited limitations of claim 6.

Regarding claim 7, the prior art fails to disclose or make obvious a particle diameter distribution measuring method for measuring the particle diameter distribution of a measuring sample, based on the detection values of plural detectors provided for detecting at predetermined angles diffracted light and/or scattered light generated when light is applied to the measuring

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sample having the steps of storing the output of the respective detectors at different concentrations of the measuring sample; determining concentration correction constants for correcting the detection values of the respective detectors at different concentrations of the sample; correcting detection values of the respective detectors by using the concentration correction constants, and determining the particle diameter distribution by using the corrected detection values of the respective detectors, and in combination with the other recited limitations of claim 7.

Regarding claim 8, the prior art fails to disclose or make obvious a particle diameter distribution measuring device for measuring particle diameter distribution of a measuring sample, based on the detection values of plural detectors provided for detecting at predetermined angles diffraction light and/or scattered light generated when light is applied to the measuring sample a storage part which stores the detection values of the detectors separately for each concentration of measuring sample and carrier fluid when the measuring sample is diluted to different concentrations; and an arithmetic processing part for generating concentration correction constants to remove an influence of error resulting from the concentration of the measuring sample separately for each detector by analyzing the detection values of the detectors stored in the storage part in association with the concentrations of the measuring sample, and in combination with the other recited limitations of claim 8.

Regarding claim 9, the prior art fails to disclose or make obvious a particle diameter distribution measuring device for measuring the particle diameter distribution of a measuring sample, based on the detection values of plural detectors provided for detecting at predetermined angles diffraction light and/or scattered light generated when light is applied to the measuring

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sample having a storage part which stores concentration correction constants obtained by finding the amount of correction in the detection values of the detectors in accordance with different concentrations of the measuring sample, based on the detection values of the detectors measured a plural number of times by changing the concentration of the measuring sample in a carrier fluid; and an arithmetic processing part which corrects the detection values of the detectors in accordance with the concentrations of the measuring sample by using the concentration correction constants, and then calculates the particle diameter distribution by using the corrected detection values , and in combination with the other recited limitations of claim 9.

Regarding claim 10, the prior art fails to disclose or make obvious a measuring program executed by a particle diameter distribution measuring device for measuring the particle diameter distribution of a measuring sample; based on the detection values of plural detectors provided for detecting at predetermined angles diffraction light and/or scattered light generated when light is applied to the measuring sample having measuring a measuring sample diluted to different concentrations and storing the detection values of the detectors separately for each concentration with a detection value grabbing program module; and analyzing the detection values of the detectors in association with the concentrations of the measuring samples and finding the concentration correction constants for each detector which removes the influence of error resulting from concentration with a correction constant generation program module, and in combination with the other recited limitations of claim 10. Claim 11 is allowed by the virtue of dependency on the allowed claim 10.

Regarding claim 12, the prior art fails to disclose or make obvious a measuring program executed by a particle diameter distribution measuring device for measuring the particle diameter

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distribution of a measuring sample, based on the detection values of plural detectors provided for detecting at predetermined angles diffraction light and/or scattered light generated when light is applied to the measuring sample having the steps of determining detection values of the respective detectors for different concentrations of the measuring sample to the carrier medium; determining concentration correction constants from the detection values; correcting the detection values with the concentration correction constants; and determining the particle diameter distribution from the correction detection values, and in combination with the other recited limitations of claim 12.

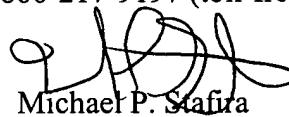
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Stafira whose telephone number is 571-272-2430. The examiner can normally be reached on 4/10 Schedule Mon.-Thurs..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael P. Stafira
Primary Examiner
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September 20, 2005